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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/668,455	SZETO ET AL.	
	Examiner	Art Unit	
	VIRGINIA HO	2432	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05/12/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the request for reconsideration filed June 18, 2009.

2. Claims 1-11 have been amended. Claims 12-16 were added.

3. Applicant's arguments, with respect to the claims, have been considered and are persuasive, however new grounds of rejection are presented below.

Specification

4. The disclosure is objected to because of the following informalities: *typographical errors*. The specification recites "**destination source** IP address" *(page 1, line 24; page 4, line 9)*.

Appropriate correction is required.

Response to Arguments

5. Applicant's arguments, see pages 2-4, filed June 18, 2009, with respect to the objections to the specification have been fully considered and are persuasive. The objections have been withdrawn.

6. Applicant's arguments, see replacement sheets, filed June 18, 2009, with respect to the objection to the drawings have been fully considered and are persuasive. The objection has been withdrawn.

7. Applicant's arguments, see replacement sheets, filed June 18, 2009, with respect to the objection to the claims 5, 6, and 11 have been fully considered and are persuasive. The objections have been withdrawn.

8. Applicant's arguments, see page 6, filed June 18, 2009, with respect to the rejections of claims 4 and 5 under 35 U.S.C. § 112, second paragraph have been fully considered and are persuasive. The rejections have been withdrawn.

9. Applicant's arguments, see page 13-14, filed June 18, 2009, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C. § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly cited art by Chrysanthakopoulos in view of Haviland.

10. Applicant's arguments with respect to claims 4 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections – 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Independent claim 12 recites "determine if a destination IP address included in a received data packet corresponds to a gateway IP address of the management port; if the destination IP address **does not** correspond to the gateway IP address of the management port, determine if the data packet originated from a management virtual local area network (VLAN)…" whereupon if additional conditions are met, the packet is dropped. Additionally, dependent claim 13 recites "if the destination IP address **does** correspond to the gateway IP address of the management port, the control component is configured to pass the data packet." Examiner requests the Applicant specify where support for such features can be found and/or how the disclosure can be interpreted to provide sufficient support for such features.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 2-3, 8, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Dependent claims 2-3 and 8 recite "a data packet" and "the data packet" while independent claim 1 recites "management data packets." Dependent claim 10 recites "a data packet" and "the data packet" while independent claim 9 recites "management data packets." It is unclear whether the dependent claims are referring to the same packets as those "management data packets" recited in the respective independent claims. For the purposes of examination, it will be assumed that the "data packets" recited in the dependent claims correspond to the "management data packets."

15. Claims 12 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 12 recites "determine if the **data packet originated** from a management virtual local area network" and subsequently "if the **destination IP address** did not **originate** from the management VLAN". Claim 14 recites "if the **destination IP address** did originate from the management VLAN." For the purposes of examination, the limitations of determining if the destination IP address did/did not originate from the management VLAN will be interpreted as determining if the ***data packet*** did/did not originate from the management VLAN.

16. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17. Independent claim 12 recites "determine if a destination IP address included in a received data packet corresponds to a gateway IP address of the management port; if the destination IP address **does not** correspond to the gateway IP address of the management port, determine if the data packet originated from a management virtual local area network (VLAN)…" whereupon if additional conditions are met, the packet is dropped. Additionally, dependent claim 13 recites "if the destination IP address **does** correspond to the gateway IP address of the management port, the control component is configured to pass the data packet." Both of these limitations appear to contradict the disclosure, particularly Fig. 3 *(corresponding to page 10, lines 5-15).* As such, Examiner submits that the particular limitations are rendered unclear and thus indefinite.

For the purposes of examination, claim 12 will be interpreted as "determine if a destination IP address included in a received data packet corresponds to a gateway IP address of the management port; if the destination IP address **DOES** correspond to the gateway IP address

of the management port, determine if the data packet originated from a management virtual local area network (VLAN)…" while claim 13 will be interpreted as "wherein if the destination IP address **DOES NOT** correspond to the gateway IP address of the management port, the control component is configured to pass the data packet.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 1, 4-5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chrysanthakopoulos et al. *(US Patent 7,343,441) (hereinafter Chrysanthakopoulos),* in view of Haviland *(Designing High-Performance Campus Intranets with Multilayer Switching, 1998) (previously cited).*

As per claim 1, Chrysanthakopoulos teaches a method comprising:

identifying, by a network device, a first port of the network device as a management port *(column 5, lines 26-31, predetermined management port; Fig. 2, item 222c)*;

identifying, by the network device, a second port of the network device as a non-management port *(Fig. 2, items 222a or 222b)*; and

filtering, by the network device, management data packets received on the second port *(column 6, lines 28-29, determining whether received management command; column 6, lines 54-57, discriminates identity of corresponding receiving port).*

Chrysanthakopoulos does not explicitly teach the method wherein the first port has a gateway address.

However, Haviland teaches gateway addresses corresponding to ports *(page 25, second table featuring Device, IP Address, and Gateway Address for the management port of each switch)*. It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Chrysanthakopoulos to map the first port to a gateway address, as Haviland teaches that it is important to keep track of the IP addresses of management interfaces *(page 30)*.

As per claim 4, Chrysanthakopoulos in view of Haviland teaches the method of claim 1, as applied above. Haviland additionally teaches the method, further comprising:

defining a virtual local area network including the first port and a first subnet *(page 10, column 2, a subnet corresponds to a VLAN, a VLAN may map to one or more switches)*; and

allowing access to management functions of the network device only to those hosts connected to the first subnet *(page 15, column 1, designating a VLAN for management traffic whereby policies can be applied with access lists. As subnets and VLANs correspond to one another, allowing access to hosts connected to the VLAN is analogous to allowing access to hosts connected to the subnet.)*.

As per claim 5, Chrysanthakopoulos in view of Haviland teaches the method of claim 4, as applied above. Chrysanthakopoulos in view of Haviland additionally teaches the method, further comprising:

connecting another network device to the second port *(Chrysanthakopoulos, Fig. 2, devices A, B, or C)*;

defining a port of the another network device as part of the virtual local area network *(Haviland, page 15, column 1, designating a VLAN for management traffic)*, wherein the port of the another network device is assigned a source IP address that corresponds to the gateway address of the first port *(Haviland, second table, devices a1a and d1a on the VLAN have management ports with the same gateway address)*, and wherein management data packets for managing the another network device are sent to the source IP address *(Chrysanthakopoulos, column 5, lines 26-31, in order to manage a device, management commands must be sent to the corresponding management port of the device)*.

As per claim 7, Chrysanthakopoulos in view of Haviland teaches the method of claim 1, as applied above. Haviland additionally teaches the method, further including: providing an application specific integrated circuit operable to filter management data packets received on the second port *(page 3, ASICs handle packet forwarding; page 15, policies are applied with access lists such that access to management traffic and management ports on network devices is carefully controlled)*.

20. Claims 2-3, 8, and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chrysanthakopoulos, in view of Haviland, and further in view of Blewett et al. *(US Patent 7,131,141) (hereinafter Blewett)*.

As per claim 2, Chrysanthakopoulos in view of Haviland teaches the method of claim 1, as applied above. Neither reference explicitly teaches the method, wherein the filtering includes:

determining if a destination IP address for a data packet received on the second port has a destination IP address that corresponds to the gateway address of the first port.

However, Blewett teaches a gateway using a rule table to determine whether to accept or drop packets received based upon source/destination port, protocol, and source/destination IP addresses *(column 10, lines 14-40)*. It would have been obvious for one of ordinary skill in the art at the time of the invention to further modify Chrysanthakopoulos to determine whether the destination IP address of a packet received in a second port *(non-management port)* corresponds to the gateway address of a first port *(management port)*, as Blewett teaches utilizing various types of packet handling rules to implement a desired security gateway functionality *(column 10, lines 11-13)* (in this case, filtering management commands as taught by Chrysanthakopoulos in view of Haviland).

As per claim 3, Chrysanthakopoulos in view of Haviland and Blewett teaches the method of claim 2, as applied above. Chrysanthakopoulos in view of Haviland and Blewett additionally teaches the method, wherein the filtering further includes:

if the destination IP address for the data packet received on the second port corresponds to the gateway address of the first port, determining if the data packet utilizes a management protocol *(Chrysanthakopoulos, column 6, lines 31-34, inspecting the received data to determine if received a management command;)*; and

if the data packet utilizes a management protocol, dropping the data packet *(Chrysanthakopoulos, column 6, lines 65-66, determining the receiving ports identification; column 2, lines 50-54, any management commands received from devices coupled to the communication bus but not to the management port –coupled to non-management port— cannot be authorized, and are ignored).*

As per claim 8, Chrysanthakopoulos in view of Haviland teaches the method of claim 1, as applied above. Chrysanthakopoulos in view of Haviland additionally teaches the method further including:

providing an application specific integrated circuit operable to *(Haviland, page 3, ASICs handle packet forwarding)*:

determine if the data packet utilizes a management protocol *(Chrysanthakopoulos, column 6, lines 31-34, inspecting the received data to determine if received a management command)*; and

drop the data packet if it is determined that the data packet has a destination IP address that corresponds to the gateway address of the first port, and that the data packet utilizes a management protocol *(Chrysanthakopoulos, column 6, lines 65-66, determining the receiving ports identification; column 2, lines 50-54, any management commands received from devices coupled to the communication bus but not to the management port –coupled to non-management port— cannot be authorized, and are ignored).*

Neither reference explicitly teaches the method wherein the ASIC is further operable to: determine if a destination IP address for a data packet received on the second port corresponds to the gateway address of the first port.

However, Blewett teaches a gateway using a rule table to determine whether to accept or drop packets received based upon source/destination port, protocol, and source/destination IP addresses *(column 10, lines 14-40)*. It would have been obvious for one of ordinary skill in the art at the time of the invention to further modify Chrysanthakopoulos to determine whether the destination IP address of a packet received in a second port *(non-management port)* corresponds to the gateway address of a first port *(management port)*, as Blewett teaches utilizing various types of packet handling rules to implement a desired security gateway functionality *(column 10, lines 11-13)* (in this case, filtering management commands as taught by Chrysanthakopoulos in view of Haviland).

As per claim 12, Chrysanthakopoulos teaches a network device comprising:

a plurality of ports including a management port *(column 5, lines 26-31, predetermined management port; Fig. 2, item 222c – management port--; Fig. 2, items 222a or 222b – other ports--)*. Chrysanthakopoulos additionally teaches *determining whether a management command was received (column 6, lines 28-29); such that any management commands received from devices coupled to the communication bus but not to the management port –coupled to non-management port— cannot be authorized, and are ignored (column 2, lines 50-54); wherein an authorized management device can only be a device coupled, either directly or indirectly, to a management port of the computer (column 5, lines 50-53).*

Chrysanthakopoulos does not explicitly teach the device comprising:

a control component configured to:

determine if a destination IP address included in a received data packet corresponds to a gateway IP address of the management port;

if the destination IP address does correspond to the gateway IP address of the management port, determine if the data packet originated from a management virtual local area network (VLAN), wherein the management VLAN includes the management port;

if the destination IP address did not originate from the management VLAN, determine if the data packet uses a management protocol; and

if the data packet uses a management protocol, drop the packet.

However, Haviland teaches ASICs *(a control component)* which handle packet forwarding *(page 3)*, wherein management ports have corresponding gateway IP addresses *(page 25, second table)*, and wherein VLANs are designated for management traffic *(page 15, column 1)*.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Chrysanthakopoulos in order to *define such a "coupling" via a management VLAN, as Haviland teaches that doing so allows access to management traffic and management ports to be carefully controlled (page 15).* Thus, Chrysanthakopoulos in view of Haviland teaches *a control component configured to: determine if the data packet originated from a management virtual local area network (VLAN), wherein the management VLAN includes the management port; if the data packet did not originate from the management VLAN, determine if*

the data packet uses a management protocol; and if the data packet uses a management protocol, drop the packet.

Neither reference explicitly teaches the invention whereby prior to determining if the data packet originated from a management VLAN, determine if a destination IP address included in a received data packet corresponds to a gateway IP address of the management port.

However, Blewett teaches a gateway using a rule table to determine whether to accept or drop packets received based upon source/destination port, protocol, and source/destination IP addresses *(column 10, lines 14-40)*. It would have been obvious for one of ordinary skill in the art at the time of the invention to further modify Chrysanthakopoulos to determine whether the destination IP address of a packet received in a second port *(non-management port)* corresponds to the gateway address of a first port *(management port)*, as Blewett teaches utilizing various types of packet handling rules to implement a desired security gateway functionality *(column 10, lines 11-13)* (in this case, filtering management commands as taught by Chrysanthakopoulos in view of Haviland).

As per claim 13, Chrysanthakopoulos in view of Haviland and Blewett teaches the network device of claim 12, as applied above. Chrysanthakopoulos in view of Haviland and Blewett additionally teaches the network device wherein if the destination IP address *does not* correspond to the gateway IP address of the management port, the control component is configured to pass the data packet *(column 2, lines 62-64, column 8, lines 28-35, normal data traffic may be passed)*.

As per claim 14, Chrysanthakopoulos in view of Haviland and Blewett teaches the network device of claim 12, as applied above. Chrysanthakopoulos in view of Haviland and Blewett additionally teaches the network device wherein if the data packet did originate from the management VLAN, the control component is configured to pass the data packet *(Analogously, Chrysanthakopoulos in view of Haviland teaches a device constitutes an authorized device if it is coupled to the management VLAN, such that the management command is executed. (Chrysanthakopoulos, column 7, lines 7-10))*.

As per claim 15, Chrysanthakopoulos in view of Haviland and Blewett teaches the network device of claim 12, as applied above. Chrysanthakopoulos in view of Haviland and Blewett additionally teaches the network device wherein if the data packet does not use a management protocol, the control component is configured to pass the data packet *(column 2, lines 62-64, column 8, lines 28-35, normal data traffic may be passed)*.

As per claim 16, Chrysanthakopoulos in view of Haviland and Blewett teaches the network device of claim 12, as applied above. Chrysanthakopoulos in view of Haviland and Blewett additionally teaches the network device wherein the network device is a router *(Haviland, pages 24-25, routers r1a and r1b feature management ports)*.

21. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chrysanthakopoulos in view of Haviland, further in view of Sylvest et al. *(US Pre-Grant Publication 2003/0188003) (hereinafter Sylvest) (previously cited).*

As per claim 6, Chrysanthakopoulos in view of Haviland teaches the method of claim 5, as applied above. Neither reference teaches the method, wherein management data packets have higher priority than other data packets routed through the network device.

However, Sylvest teaches management packets having higher priority than the data packets *(paragraph [0029], a prioritizer assures that user data flow cannot re-empt management data flow).*

It would have been obvious for one of ordinary skill in the art at the time of the invention to further modify Chrysanthakopoulos in order to provide management packets with higher priority than that of data packets, as Sylvest teaches that this may prevent the loss of a management packet in the processing of received packets if there are periods of excessive incoming data packets *(paragraph [0029])*.

22. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chrysanthakopoulos in view of Haviland, and further in view of Glenn *(A Summary of DoS/DDoS Prevention, Monitoring and Mitigation Techniques in a Service Provider Environment, 2003).*

As per claim 9, Chrysanthakopoulos teaches a network device comprising:

a first port defined as a management port *(column 5, lines 26-31, predetermined management port; Fig. 2, item 222c)*;

a second port which defined as a non-management port *(Fig. 2, items 222a or 222b)*;

a processing component operable to provide management functions that allow a user to modify operation of the network device *(column 7, lines 7-13, the device's controlling processor executes the management command)*; and

deny access to the management functions for hosts that transmit management data packets to the network device through the second port *(column 6, lines 65-66, determining the receiving ports identification; column 2, lines 50-54, any management commands received from devices coupled to the communication bus but not to the management port –coupled to non-management port— cannot be authorized, and are ignored)*.

Chrysanthakopoulos does not explicitly teach an application specific integrated circuit operable to deny access to the management functions for hosts that transmit management data packets to the network device through the second port.

However, Haviland teaches ASICs which handle packet forwarding *(page 3)*. Therefore it would have been obvious for one of ordinary skill in the art at the time of the invention to provide an ASIC for filtering devices which attempt access to management functions through a non-management port. One would have been motivated to do so as Glenn teaches that ASIC based ACLs perform better than ACLs in software *(page 22)*.

23. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chrysanthakopoulos in view of Haviland, and further in view of Glenn, and further in view of Blewett.

As per claim 10, Chrysanthakopoulos in view of Haviland and Glen teaches the network device of claim 9, as applied above. Chrysanthakopoulos in view of Haviland and Glen

additionally teaches the network device wherein the application specific integrated circuit is further operable to:

determine if the data packet utilizes a management protocol *(column 6, lines 28-29, determining whether received management command)*; and

if the data packet utilizes a management protocol, drop the data packet *(column 6, lines 28-29, determining whether received management command; column 2, lines 50-54, any management commands received from devices coupled to the communication bus but not to the management port –coupled to non-management port— cannot be authorized, and are ignored)*.

None of the references explicitly teaches the device wherein the ASIC is operable to determine if a data packet received on the second port includes a destination IP address that corresponds to a gateway IP address of the first port, prior to determining whether the data packet utilizes a management protocol.

However, Blewett teaches a gateway using a rule table to determine whether to accept or drop packets received based upon source/destination port, protocol, and source/destination IP addresses *(column 10, lines 14-40)*. It would have been obvious for one of ordinary skill in the art at the time of the invention to further modify Chrysanthakopoulos to determine whether the destination IP address of a packet received in a second port *(non-management port)* corresponds to the gateway address of a first port *(management port)*, as Blewett teaches utilizing various types of packet handling rules to implement a desired security gateway functionality *(column 10, lines 11-13)* (in this case, filtering management commands as taught by Chrysanthakopoulos in view of Haviland).

As per claim 11, Chrysanthakopoulos in view of Haviland and Glen and Blewett teaches the network device of claim 10, as applied above. The references additionally teach the network device, wherein the first port is defined to be part of a management virtual local area network *(Haviland, page 15, column 1, designating a VLAN for management traffic whereby policies can be applied with access lists)*, and wherein only devices that are coupled to the management virtual local area network have access to the management functions of the processing component *(Chrysanthakopoulos, column 5, lines 50-53, an authorized management device can only be a device coupled, either directly or indirectly, to a management port of the computer. It would have been obvious to define such a "coupling" via a management VLAN, as Haviland (page 15) teaches that doing so allows access to management traffic and management ports to be carefully controlled)*.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIRGINIA HO whose telephone number is 571-270-7309. The examiner can normally be reached on Mon to Thu; 8:30 AM - 5:00 PM (Eastern).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VIRGINIA HO/
Examiner, Art Unit 2432

/Gilberto Barron Jr./
Supervisory Patent Examiner, Art Unit 2432